

## 1,2,4 - Trichlorobenzene

*Chemical Information.*

**CAS Number** - 95-95-4

**Alternate Names** - Collunosol, Dowicide 2

**General Uses** - This chemical is used as a fungicide to destroy or prevent fungi from growing. It is also used as a herbicide and to make other pesticides.

**Potential Hazards** - If your skin comes into contact with this chemical, it may burn. It can also irritate your eyes, nose, pharynx and lungs. This chemical may cause potential damage to the liver and kidneys (EPA Integrated Risk Information - IRIS).

*Summary Analysis– 1,2,4 – Trichlorobenzene.*

- 1,2,4 - trichlorobenzene accounted for about 2.1 percent of the national total PC quantity in 2003 with 1,674,271 pounds.
- There was a significant increase (over 20 percent) in reporting of 1,2,4 - trichlorobenzene to TRI during the period 1999 to 2003.
- Eighteen facilities in 14 different SIC codes reported 1,2,4 - trichlorobenzene to TRI in 2003.
- One of these 18 facilities, located in Region 6, accounted for 78 percent of the total quantity of this chemical. Seven of the 18 facilities accounted for over 98 percent of the total quantity.
- Five industry sectors (SIC codes) accounted for over 98 percent of the 1,2,4 - trichlorobenzene in 2003.
- Facilities in SIC 2812 (Alkalies and chlorine) reported the highest quantities, accounting for almost 78 percent of the total PC quantity of 1,2,4 - trichlorobenzene reported in 2003.
- Most of the 1,2,4 - trichlorobenzene was treated, primarily onsite. Some energy recovery also occurred. Overall, there was relatively little recycling of 1,2,4 - trichlorobenzene in 2003.

*National Trends – 1,2,4 – Trichlorobenzene.* Exhibit 4.2 shows that the number of facilities that reported 1,2,4 - trichlorobenzene from 1999-2003 was relatively constant, with 18 facilities reporting in 2003. It also shows that, in 2003, there was an almost 21 percent increase in the total PC quantity (pounds) of 1,2,4 - trichlorobenzene, compared to 1999. The methods used to manage 1,2,4 - trichlorobenzene, i.e., disposal, energy recovery, and treatment, have essentially remained the same, with treatment used for almost 91 percent of the total quantity, followed by energy recovery (8.1%) and disposal (1.0%). Exhibit 4.3 is a map that shows the facilities and the distribution by quantity of 1,2,4 – trichlorobenzene reported in 2003. Of these 18 facilities that reported 1,2,4 - trichlorobenzene in 2003, one facility accounted for 78 percent of the total quantity of this chemical; 7 of the 18 facilities accounted for over 98 percent of the total quantity (Exhibit 4.4).

Exhibit 4.2. National-Level Information for 1,2,4 - Trichlorobenzene 1999-2003)

	1999	2000	2001	2002	2003	Percent Change in Total Quantity (1999 - 2003)	Management Method -- Percent of Total Quantity of this Chemical in 2003
Number of Facilities	21	19	19	17	18	-14.3%	
Disposal Quantity (pounds)	8,512	6,602	5,299	7,216	17,138	101.3%	1.0%
Energy Recovery Quantity (pounds)	113,944	512,794	486,605	118,074	135,468	18.9%	8.1%
Total Treatment Quantity (pounds)	1,266,143	669,681	1,691,092	1,401,739	1,521,664	20.2%	90.9%
Total PC Quantity Pounds)	1,388,599	1,189,077	2,182,996	1,527,029	1,674,271	20.6%	

Exhibit 4.3. Distribution of Facilities Reporting 1,2,4 – Trichlorobenzene in 2003 & Quantity of 1,2,4 – Trichlorobenzene Reported in 2003 per Region

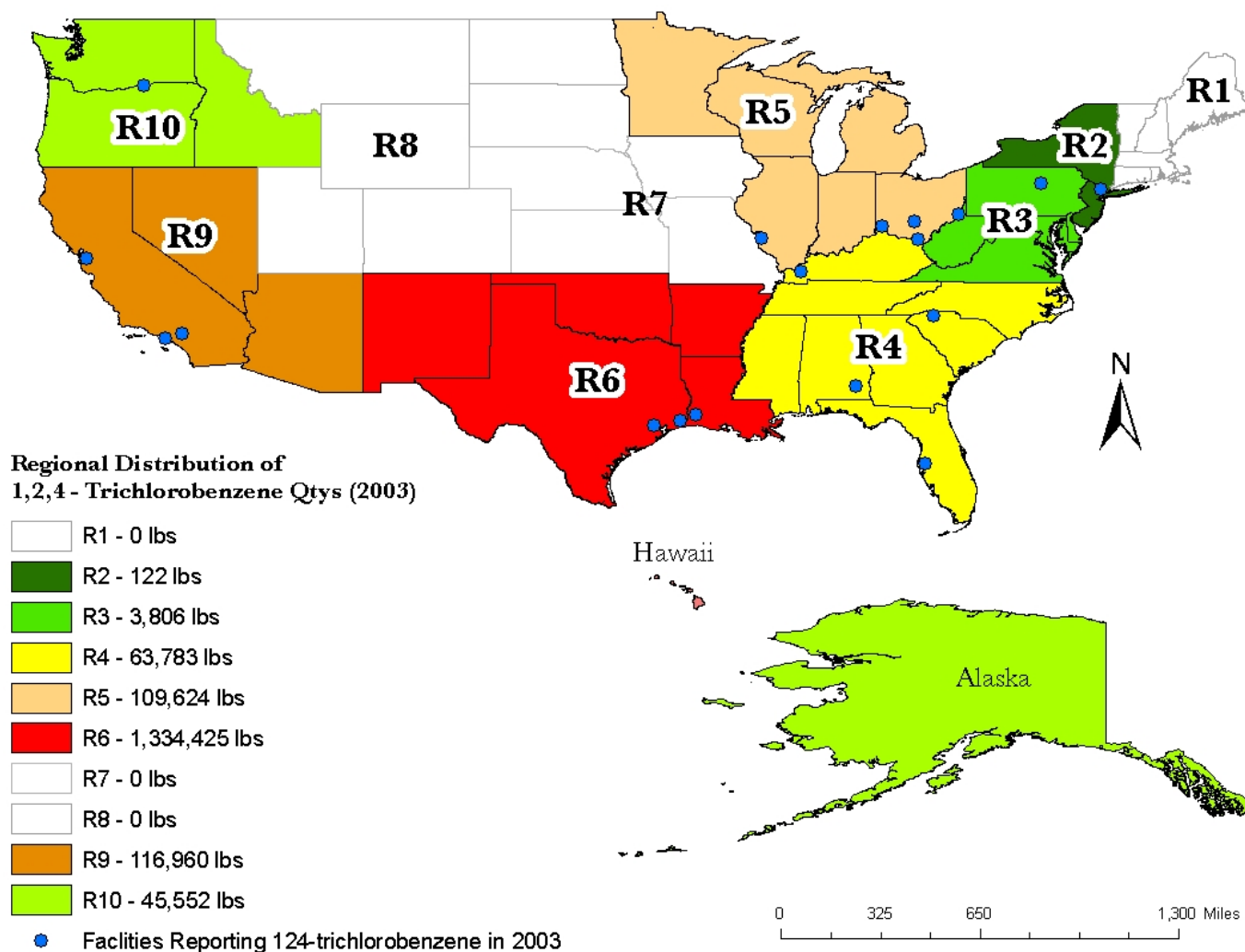


Exhibit 4.4. Distribution of Facilities that Reported Quantities for 1,2,4 - Trichlorobenzene (2003)

<b>1,2,4 - Trichlorobenzene (1,674,271 pounds)</b>		
<b>Quantity Reported</b>	<b>Number of Facilities Reporting this quantity (2003)</b>	<b>Percent of Total Quantity for this Priority Chemical</b>
up to 10 pounds	2	less than 0.1%
between 11 - 100 pounds	1	less than 0.1%
between 101 -1,000 pounds	3	0.1%
between 1,001 - 10,000 pounds	5	1.4%
between 10,001 - 100,000 pounds	5	14.8%
between 100,001 - 1 million pounds	1	6.1%
> 1 million pounds	1	77.7%

*EPA Region Trends– 1,2,4 – Trichlorobenzene.* Exhibit 43 shows the quantity (pounds) of 1,2,4 - trichlorobenzene for each EPA Region in 1999-2003. Facilities in Region 6 consistently reported most of the 1,2,4 - trichlorobenzene.

Exhibit 4.5. Quantity of 1,2,4 - Trichlorobenzene Reported by EPA Regions (1999-2003)

<b>EPA REGION</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
2	0	0	0	0	122
3	128,411	128,562	255,300	3,532	3,806
4	237,689	87,447	59,361	169,125	63,783
5	100,400	92,133	100,000	117,731	109,624
6	878,565	848,986	1,762,188	1,025,770	1,334,425
9	43,534	31,949	6,147	98,044	116,960
10	0	0	0	112,827	45,552
<b>Total</b>	<b>1,388,599</b>	<b>1,189,077</b>	<b>2,182,996</b>	<b>1,527,029</b>	<b>1,674,271</b>

Exhibit 4.6 shows how 1,2,4 - trichlorobenzene was managed within each EPA Region. Most 1,2,4 - trichlorobenzene was treated; however, in Regions 3 and 4, much of the 1,2,4 - trichlorobenzene was recycled.

Exhibit 4.6. Management Methods for 1,2,4 - Trichlorobenzene, By EPA Region (2003)

<b>EPA Region</b>	<b>Disposal</b>		<b>Energy Recovery</b>		<b>Treatment</b>		<b>Recycling</b>	
	<b>Onsite Disposal</b>	<b>Offsite Disposal</b>	<b>Onsite Energy Recovery</b>	<b>Offsite Energy Recovery</b>	<b>Onsite Treatment</b>	<b>Offsite Treatment</b>	<b>Onsite Recycling</b>	<b>Offsite Recycling</b>
2	0	0	0	0	0	122	0	0
3	0	0	0	0	0	3,806	1,890	7,208
4	0	2,182	1,800	307	487	59,007	23,730	0
5	0	9,855	0	0	0	99,769	0	0
6	3,900	1,201	28,631	1	1,299,720	972	0	0
9	0	0	102,779	1,951	12,230	0	0	7,650
10	0	0	0	0	45,461	91	0	0
<b>Total</b>	<b>3,900</b>	<b>13,238</b>	<b>133,210</b>	<b>2,259</b>	<b>1,357,898</b>	<b>163,766</b>	<b>25,620</b>	<b>14,858</b>

*State Trends— 1,2,4 – Trichlorobenzene.* Exhibit 4.7 shows the quantity of 1,2,4 - trichlorobenzene that was reported by facilities in 20 states, between 1999-2003. Facilities in Louisiana had the largest increase in quantity (almost + 900,000 pounds since 1999) and also had the largest share (almost 78 percent) of this quantity. Significant decreases occurred in a number of states, including Texas (-440,606 pounds) (Exhibit 4.8), Mississippi (-98, 750 pounds), Delaware (-89,401 pounds), and Tennessee (-82,407 pounds).

Exhibit 4.7. State-Level Information for 1,2,4 - Trichlorobenzene (1999-2003)

State	Total Quantity (pounds) of Priority Chemical					Change in Quantity (1999-2003)	Percent of Total Quantity of this Priority Chemical (2003)	Percent Change in Quantity (1999-2003)
	1999	2000	2001	2002	2003			
Alabama	4	5	5	160,005	6	2	0.0%	37.5%
Arkansas	0	0	38,300	0	0	0	0.0%	NA
California	43,534	31,949	6,147	98,044	116,960	73,426	7.0%	168.7%
Delaware	89,401	89,177	0	0	0	-89,401	0.0%	-100.0%
Florida	0	0	0	0	205	205	0.0%	NA
Illinois	97,000	92,133	100,000	114,554	98,139	1,139	5.9%	1.2%
Kentucky	40,290	43,380	37,746	8,494	62,989	22,699	3.8%	56.3%
Louisiana	403,928	354,900	1,501,961	994,066	1,300,394	896,466	77.7%	221.9%
Mississippi	98,750	0	0	0	0	-98,750	0.0%	-100.0%
North Carolina	15,750	21,858	19,905	0	0	-15,750	0.0%	-100.0%
New Jersey	0	0	0	0	122	122	0.0%	NA
Ohio	3,400	0	0	3,177	11,485	8,085	0.7%	237.8%
Oklahoma	0	2,014	533	0	0	0	0.0%	NA
Oregon	0	0	0	112,827	45,552	45,552	2.7%	NA
Pennsylvania	0	1	1	3,532	30	30	0.0%	NA
South Carolina	488	499	1,705	626	583	95	0.0%	19.5%
Tennessee	82,407	21,705	0	0	0	-82,407	0.0%	-100.0%
Texas	474,637	492,072	221,394	31,704	34,031	-440,606	2.0%	-92.8%
Virginia	31,492	33,358	23,591	0	0	-31,492	0.0%	-100.0%
West Virginia	7,518	6,026	231,708	0	3,776	-3,742	0.2%	-49.8%
Total	1,388,599	1,189,077	2,182,996	1,527,029	1,674,271	285,672	100.0%	20.6%

Exhibit 4.8. 1,2,4 - Trichlorobenzene Significant Quantity Trends (1999-2003): Facilities in Texas and Louisiana

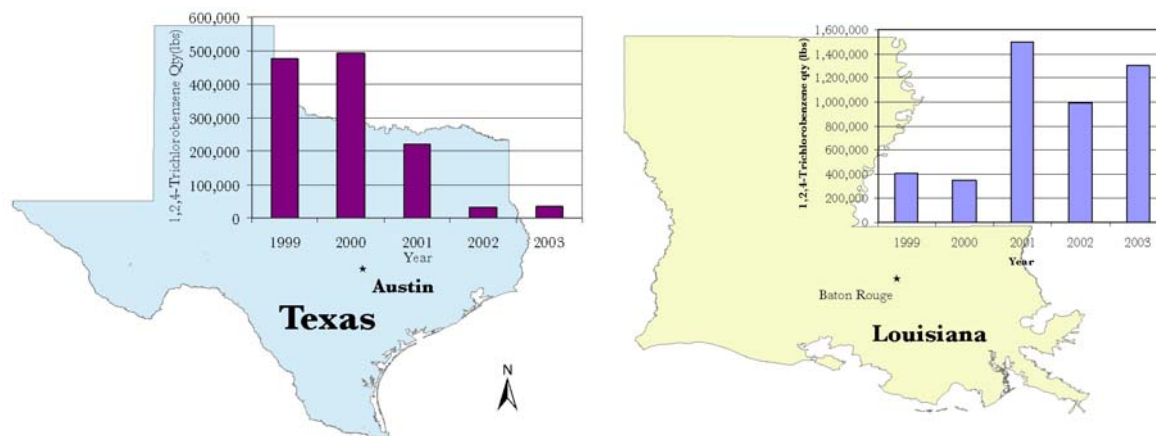


Exhibit 4.9 shows the trend in total quantity for facilities in the three states that accounted for 90 percent of the total quantity of 1,2,4 - trichlorobenzene in 2003. Exhibit 4.10 shows how these facilities managed their 1,2,4 - trichlorobenzene in 2003. Most of the 1,2,4 - trichlorobenzene was treated, primarily onsite. Some energy recovery also occurred. Overall, there was relatively little recycling of 1,2,4 - trichlorobenzene in 2003.

Exhibit 4.9. 1,2,4 - Trichlorobenzene Trends in States with 90 Percent of Total Quantity (2003)

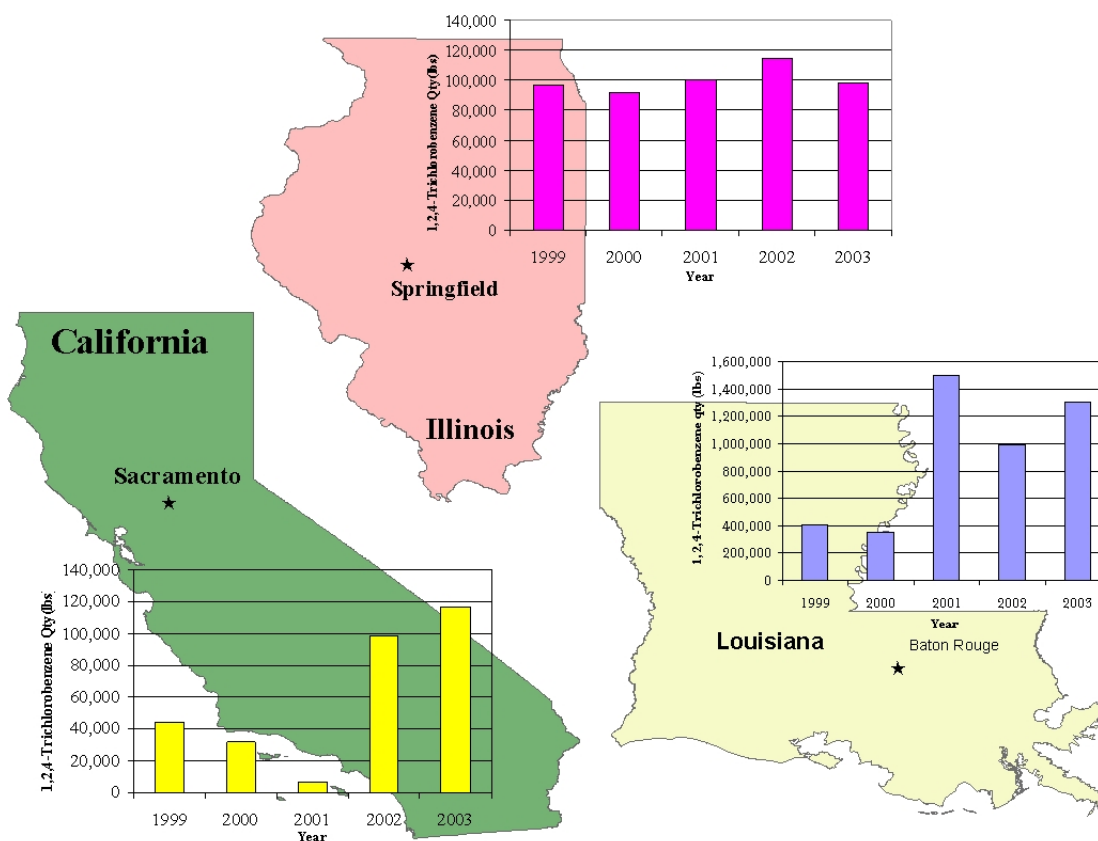


Exhibit 4.10. Management of 1,2,4 - Trichlorobenzene in States with 90 Percent of Total Quantity (2003)

State	Total Priority Chemical Quantity (2003)	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
Louisiana	1,300,394	0	1	0	1	1,299,720	672	0	0
California	116,960	0	0	102,779	1,951	12,230	0	0	7,650
Illinois	98,139	0	0	0	0	0	98,139	0	0

*Industry Sector (SIC) Trends– 1,2,4 – Trichlorobenzene.* Exhibit 4.11 shows the PC quantity (pounds) of 1,2,4 - trichlorobenzene for the five industry sectors (SIC codes) where facilities reported over 98 percent of this chemical in 2003. Facilities in SIC 2812 (Alkalies and chlorine) reported the highest quantities, accounting for almost 78 percent of the total PC quantity of 1,2,4 - trichlorobenzene reported in 2003.

Exhibit 4.11. Industry Sector-Level Information for 1,2,4-Trichlorobenze (1999-2003)

			Quantity (pounds) of 1,2,4 Trichlorobenzene						
Primary SIC Code	SIC Description	Number of Facilities for this SIC Code	1999	2000	2001	2002	2003	Change in Quantity (1999-2003)	Percent of Total Quantity of this Priority Chemical (2003)
2812	Alkalies and chlorine	2	389,522	360,926	1,733,669	993,819	1,304,170	914,648	77.9%
2865	Cyclic crudes and intermediates	4	229,801	224,410	137,730	123,848	162,751	-67,050	9.7%
3479	Metal coating and allied services	1	0	0	0	84,686	102,779	102,779	6.1%
9711	National security	1	0	0	0	112,827	45,552	45,552	2.7%
2819	Industrial inorganic chemicals, nec	2	448,490	426,566	152,930	26,404	28,631	-419,859	1.7%

Exhibit 4.12 shows how 1,2,4 - trichlorobenzene was managed by facilities in the five industry sectors that accounted for over 90 percent of the total quantity of this PC in 2003. Most of the 1,2,4 - trichlorobenzene was treated, primarily onsite, within SIC 2812 – Alkalies and Chlorine and SIC 9711 – National Security. Two of these industry sectors use onsite energy recovery for their 1,2,4 - trichlorobenzene. The SIC 2865 facilities primarily sent the 1,2,4 - trichlorobenzene to offsite treatment but also employed offsite disposal and onsite energy recovery. A relatively small quantity of 1,2,4 - trichlorobenzene was recycled in 2003.

Exhibit 4.12. Management of 1,2,4 - Trichlorobenzene in Industry Sectors (SIC Codes) with 90 Percent of Total Quantity (2003)

Primary SIC Code	SIC Description	Total Priority Chemical Quantity	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2812	Alkalies and chlorine	1,304,170	0	1	0	1	1,299,720	4,448	1,890	7,208
2865	Cyclic crudes and intermediates	162,751	0	2,182	1,800	0	0	158,769	0	0
3479	Metal coating and allied services	102,779	0	0	102,779	0	0	0	0	0
9711	National security	45,552	0	0	0	0	45,461	91	0	0
2819	Industrial inorganic chemicals, nec	28,631	0	0	28,631	0	0	0	0	0

*Recycling.* Exhibit 4.13 provides some indication of the extent to which facilities in certain industry sectors recycled at least 100 pounds of 1,2,4-trichlorobenzene in 1999-2003, rather than manage it as a waste. For those year(s), the facility did not report a PC quantity, i.e., a quantity managed via land disposal, energy recovery, or treatment.

Exhibit 4.13. Facilities reporting Recycling but not a Priority Chemical quantity (1999-2003)

SIC 2812-- Alkalies and chlorine												
			1999		2000		2001		2002		2003	
Number of Facilities	EPA Region	State	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle
1	3	West Virginia	0	0	0	0	0	0	1,403	5,304	0	0